



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

AN ARRANGEMENT OF MINERALS ACCORDING TO THEIR OCCURRENCE.¹

BY EDGAR T. WHERRY AND SAMUEL G. GORDON.

In the preparation of a catalog of the minerals of Pennsylvania, upon which the writers have been engaged for some time, a systematic plan for listing the minerals under each locality has proved desirable. The standard classification, as used by Dana, being unsatisfactory for this purpose, in that it is based on chemico-crystallographic features, and represents a laboratory rather than a field system, a new arrangement, based on occurrence and genetic relationships, has been worked out.

The principles applied require little discussion. The types of mineral occurrence are classified on the basis of chemical and geological relations, the chief criterion for subdivision being dissimilarity in mineral content. Thus, granite is not separated from syenite, since both are made up of essentially the same minerals; but low-alkali syenites are separated from those high in alkalies because quite different minerals develop in the two. The various subdivisions are not sharply defined, but grade into one another, so that rather arbitrary lines must be drawn between them; for example, certain types of veins, such as the tourmaliniferous copper veins, might with equal right be classed with either pneumatolytic veins or hydrothermal deposits; and their minerals are here arbitrarily placed in the former class. However, every effort has been made to minimize difficulties of this sort by making the subdivisions as comprehensive as possible. In arranging the minerals in each division, Dana's order has been more or less closely followed.

Rather than coin new names for the several subdivisions of this scheme of classification, we have employed terms in common use, even though they are not altogether appropriate. Thus "hydrothermal" is used for mineral veins, as is customary with economic geologists, although it is recognized that pegmatites and, for that matter, even igneous rocks, have about as much right to this term, since both water and heat contribute to their formation. The terms silicic, alkalic, calcic, and magnesian for the chemical subdivisions are intended to indicate only the prominence of the respective con-

¹ Presented at the meeting of the Mineralogical and Geological Section of the Academy, December 14, 1914.

stituents, and not to have a strict quantitative significance, although in general the "silicic" rocks contain more than 45% SiO_2 , while in the other three over 7.5% of the oxides to which the name of each refers is usually present.

The classification has been extended to about 800 mineral species, some rare minerals being necessarily omitted because of lack of information as to their occurrence, although it is to be expected that many additions to the lists will prove necessary as our knowledge of mineral associations advances.

Much of the data has been obtained from recent works, especially those of Lindgren,² Emmons,³ and Rogers.⁴

SYNOPSIS OF THE CLASSIFICATION

I. MAGMATIC PHENOMENA

1. Igneous rocks

- A. Silicic (comprising acidic and intermediate, but excluding alkalic, of the usual classifications)
- B. Alkalic (alkali-syenites and similar rocks)
- C. Calcic (the basic rocks)
- D. Magnesian (the ultra-basic rocks)

Each of the above divisions is subdivided as follows:

- a. Primary
- b. Metamorphosed
- c. Weathered

2. Pegmatites (including pneumatolytic veins and many quartz veins)

- A. Silicic
- B. Alkalic
- C. Calcic

Each of the above divisions is subdivided as follows:

- a. Primary
- b. Metamorphosed
- c. Weathered

3. Hydrothermal deposits (the majority of mineral veins, including contact deposits)

(No chemical subdivision practicable)

- a. Primary
- b. Metamorphosed (including secondarily enriched)
- c. Weathered

² Econ. Geol., Vol. 2, p. 105, 1907.

³ Econ. Geol., Vol. 3, p. 611, 1908.

⁴ Econ. Geol., Vol. 7, p. 638, 1912.

4. Fumerolic deposits

(No chemical or historical subdivision practicable)

II. SEDIMENTARY PHENOMENA

1. Sediments

- A. Siliceous (including argillaceous)
- B. Calcareous (including magnesian)
- C. Ferruginous (including manganiferous and zinciferous)
- D. Saline
- E. Phosphatic
- F. Carbonaceous

Each of the above divisions is subdivided as follows:

- a. Primary
- b. Metamorphosed
- c. Weathered

THE CLASSIFICATION APPLIED TO MINERALS

I. 1. A. SILICIC IGNEOUS ROCKS

a. Primary

Silicon oxides:	quartz, tridymite
Feldspars; orthoclases:	orthoclase, anorthoclase, microcline
plagioclases:	albite, oligoclase
Metasilicates; pyroxenes:	augite; spodumene; rhodonite
amphiboles:	hornblende
miscellaneous:	iolite
Orthosilicates: garnets:	almandite, andradite
chrysolites:	fayalite
epidotes:	epidote, allanite
micas:	muscovite, biotite
boro-:	axinite; black tourmaline; dumortierite
fluo-:	topaz
rare-earth-:	zircon; gadolinite; titanite
Phosphates; fluo-:	apatite
rare-earth-:	monazite, xenotime
Halides; fluorides:	fluorite
Oxides; 2: 3:	corundum, hematite
1: 2:	rutile, cassiterite
double; spinels:	spinel (ceylonite), magnetite

- | | |
|------------------------------|--------------------------|
| Oxides; double; rare-earth-: | ilmenite, pseudobrookite |
| Sulfides; nonmetallic: | molybdenite |
| metallic: | pyrite; chalcopyrite |
| Elements; nonmetallic: | graphite |
| metallic: | gold |
- b. Metamorphosed (additional to those of a, which may be recrystallized by metamorphism)
- | | |
|---------------------------|--------------------------------------|
| Orthosilicates; epidotes: | zoisite, piedmontite |
| hydroxy-: | chlorite (many varieties); kaolinite |
| Sulfates; hydroxy-: | alunite |
| Oxides; 1:2: | brookite, octahedrite |
| hydroxy-: | diaspore |
- c. Weathered
- | | |
|---------------------------|--|
| Silicon oxides: | quartz, chalcedony, opal |
| Orthosilicates; hydroxy-: | chlorite (many varieties); vermiculite (many varieties); kaolinite, chloropal, allophanite |
| Sulfates; hydrous-: | alunogen, halotrichite |
| hydroxy-: | jarosite |
| Phosphates; hydroxy-: | turquoise |
| Oxides; hydroxy-: | bauxite, limonite, manganite, wad |
| Hydroxides: | gibbsite |

I. 1. B. ALKALIC IGNEOUS ROCKS

a. Primary

- | | |
|--------------------------|---|
| Silicon oxides: | (quartz) |
| Feldspars; orthoclases: | orthoclase, anorthoclase, microcline |
| plagioclases: | albite, oligoclase, andesine |
| Metasilicates; leucites: | leucite |
| pyroxenes: | acmite, ægirite |
| amphiboles: | hornblende, arfvedsonite, barkevikite, riebeckite, enigmatite |
| rare-earth-: | lovenite |
| Orthosilicates; garnets: | andradite |
| nephelites: | nephelite, cancrinite |
| sodalites: | sodalite, hauynite, noselite |
| melilites: | melilite |
| micas: | biotite |
| rare-earth-: | zircon |

- | | |
|--------------------------------|------------------------------|
| Orthosilicates; hydrous: | analcite |
| Phosphates; fluo- and chloro-: | apatite |
| Halides; fluorides: | villiaumite, fluorite |
| Oxides; double; spinels: | spinel (ceylonite) magnetite |
| rare-earth-: | ilmenite, perovskite |
- b. Metamorphosed (additional to those of a)
- | | |
|--------------------------------|---------------------------|
| Orthosilicates; miscellaneous: | ilvaite |
| micas: | muscovite |
| hydroxy-: | chlorite (many varieties) |
| Oxides; 1: 2: | rutile |
| hydroxy-: | diaspore |
- c. Weathered
- | | |
|--------------------------------|---------------------------------------|
| Silicates; hydroxy-; zeolites: | hydronephelite, natrolite, thomsonite |
| misc.: | kaolinite |
| Oxides; hydroxy-: | bauxite; limonite |
| Hydroxides: | gibbsite |

I. 1. C. CALCIC IGNEOUS ROCKS

- a. Primary
- | | |
|--------------------------------|---|
| Silicon oxides: | quartz |
| Feldspars; orthoclases: | orthoclase |
| plagioclases: | oligoclase, andesine, labradorite, bytownite, anorthite |
| Metasilicates; pyroxenes: | enstatite, hypersthene; diopside, augite; babingtonite |
| amphiboles: | hornblende; enigmatite, rhönite |
| hydrous-: | analcite |
| Orthosilicates; garnets: | andradite |
| chrysolites: | forsterite, olivine |
| melilites: | melilite |
| epidotes: | epidote |
| micas: | biotite |
| rare-earth-: | titanite |
| Phosphates; fluo- and chloro-: | apatite |
| Oxides; 1: 2: | rutile |
| double; spinels: | magnetite |
| rare-earth-: | ilmenite; perovskite |
| Sulfides; 1: 1: | pyrrhotite, pentlandite |
| miscellaneous: | pyrite; chalcopyrite |
| Elements; nonmetallic: | graphite |
| metallic: | iron |

b. Metamorphosed (additional to those of a)⁵

Acid silicates; hydrous:	ptilolite, mordenite
Metasilicates; amphiboles:	grünerite, glaucophanite
hydrous:	pectolite; okenite, gyrolite, apophyllite; heulandite, brewsterite, epistilbite, phillipsite, harmotome, stilbite, gismondite, laumontite, laubanite, chabazite, gmelinite, levynite, faujasite, edingtonite, natrolite, mesolite, scolecite, zeophyllite
Orthosilicates; epidotes:	zoisite, piedmontite
boro-:	datolite
hydrous:	thomsonite, hydronephelite; lawsonite; prehnite
Carbonates:	calcite, aragonite
Sulfates:	anhydrite; gypsum
Silicate-sulfate-carbonates:	thaumasite
Oxides; 2: 3:	hematite
Sulfides; 1: 1:	galena, sphalerite
Elements; metallic:	copper, silver

c. Weathered

Oxides; hydroxy-:	limonite, bauxite
Hydroxides:	gibbsite
Silicates; hydroxy-:	chlorite (many varieties), kaolinite

I. 1. D. MAGNESIC IGNEOUS ROCKS

a. Primary

Feldspars; orthoclases:	(orthoclase)
plagioclases:	labradorite, bytownite
Metasilicates; pyroxenes:	enstatite, hypersthene, augite
Orthosilicates; garnets:	andradite, pyrope, uvarovite
chrysolites:	olivine, knebelite
Oxides; 2: 3:	corundum
double; spinels:	spinel (picotite), magnetite, chromite
rare-earth-:	ilmenite; perovskite
Sulfides and arsenides; 1: 1:	pyrrhotite, niccolite
misc.:	sperrylite, chalcopyrite

⁵ Zeolite veins are regarded as belonging here.

- | | |
|------------------------|---|
| Elements; nonmetallic: | diamond, graphite |
| metallic: | iron, nickel, palladium, osmium,
iridium, iridosmine, platinum |
- b. Metamorphosed (additional to those of a)
- | | |
|---------------------------|--|
| Metasilicates; pyroxenes: | jadeite |
| amphiboles: | anthophyllite; tremolite, asbestos,
actinolite, hornblende |
| hydroxy: | talc |
| Orthosilicates; epidotes: | epidote |
| oxy-: | sillimanite |
| micas: | muscovite, margarite |
| hydroxy-: | chlorite (many varieties), serpen-
tine, deweylite, sepiolite |
| Carbonates: | calcite, dolomite, ankerite |
| Oxides; 2: 3: | corundum |
| double; spinels: | magnetite |
- c. Weathered
- | | |
|---------------------------|---|
| Silicon oxides: | quartz, chalcedony, opal |
| Orthosilicates; hydroxy-: | chloropal, genthite |
| hydrous-: | allophanite |
| Oxides; hydroxy-: | limonite, diaspore |
| Hydroxides: | brucite |
| Carbonates; calcites: | calcite, magnesite |
| hydrous: | hydromagnesite, zaratite, reming-
tonite |

Note.—Meteorites would be included here.

I. 2. A. SILICIC PEGMATITES

- a. Primary
- | | |
|---------------------------|--|
| Silicon oxides: | quartz |
| Acid silicates: | petalite, milarite |
| Feldspars; orthoclases: | microcline, anorthoclase |
| plagioclases: | albite, oligoclase |
| Metasilicates; pyroxenes: | augite; spodumene; rhodonite |
| amphiboles: | actinolite, hornblende |
| miscellaneous: | beryl, iolite, pollucite |
| Orthosilicates; garnets: | almandite, andradite, spessartite,
pyrope |
| helvites: | helvite, eulytite |
| scapolites: | wernerite |

Orthosilicates; phenakites:	phenakite
boro-:	datolite, axinite, tourmaline, dumortierite
fluo-:	topaz
oxy-:	andalusite, sillimanite, cyanite, grandidierite
epidotes:	zoisite, epidote, allanite
misc.:	euclase, carpholite
micas:	lepidolite; paragonite, muscovite; zinnwaldite, biotite
rare-earth-:	thorite, zircon, mackintoshite, gadolinite, yttrialite, thalenite, hellandite
hydrous:	chabazite, stilbite
Carbonates; calcites:	calcite, rhodochrosite, siderite
fluo-:	parisite
Phosphates; rare-earth-:	monazite, xenotime
alkali-heavy- metal:	grafonite, triphylite, lithio- philite
fluo-:	apatite, triplite, amblygonite
hydroxy-:	hamlinite, childrenite
Columbates; isometric:	hatchettolite, microlite
tetragonal:	fergusonite, tapiolite, mossite
orthorhombic:	columbite, tantalite, eschynite, polycrase, euxenite, samarskite, yttrotantalite
Tungstates:	wolframite, hübnerite, scheelite
Borates:	eremeyevite, rhodizite, hamberg- ite
Halides; 1: 2:	fluorite
1: 3:	fluocerite, yttrocerite, tysonite
double:	cryolithionite, cryolite, chiolite
Oxides; 2: 3:	corundum, hematite
1: 2:	rutile, brookite, cassiterite, tho- rianite, uraninite
double; spinels:	spinel, magnetite, gahnite
rare-earth:	ilmenite
miscellaneous:	chrysoberyl, bixbyite
Sulfides; nonmetallic:	molybdenite
metallic; 2: 3:	stibnite, bismuthinite

Sulfides; metallic; 1: 1:	sphalerite, galena, pyrrhotite
1: 2:	pyrite, arsenopyrite
double:	chalcopyrite, bornite, stannite
Elements; nonmetallic:	graphite
metallic:	bismuth, gold
b. Metamorphosed (additional to a)	
Orthosilicates; nephelites:	eucryptite
epidotes:	zoisite
misc.:	bertrandite
hydrous:	pyrophyllite
Phosphates; hydroxy:	natrophilite, beryllonite, herderite, triploidite, hureaulite
hydrous:	dickinsonite, fillowite, fairfieldite, reddingite, eosphorite
Halides; single:	fluellite
double:	pachnolite, thomsenolite, prosopite, ralstonite, gearsutite
c. Weathered	
Silicon oxides:	opal (hyalite)
Orthosilicates; hydroxy:	cookeite, chlorite, vermiculite, kaolinite
hydrous:	montmorillonite, uranophane
Carbonates; anhydrous:	bismutospherite
hydrous:	malachite, bismutite, lanthanite, tengerite, uranothallite, liebigite, voglite
fluo-:	bastnäsite
Oxides; hydroxy-:	limonite, manganite, gummite
Columbates:	rogersite
Phosphates:	purpurite, phosphuranylite, autunite, torbernite
Sulfates:	uranopilite

I. 2. B. ALKALIC PEGMATITES

a. Primary	
Silicon oxides:	(quartz)
Acid silicates:	eudidymite, epididymite, leucosphenite, narsarsukite
Feldspars; orthoclases:	microcline
plagioclases:	albite, oligoclase
Metasilicates; leucites:	leucite

Metasilicates; pyroxenes:	hedenbergite, augite; acmite, ægirite; schizolite
amphiboles:	arfvedsonite, enigmatite
rare-earth-:	rosenbuschite, lovenite, wöhlerite, hiortdahlite; eudialite, catapleiite, cappelenite, melanocerite, caryocerite, tritomite, elpidite
fluo-:	leucophanite, meliphanite
Orthosilicates; garnets:	andradite
nephelites:	nephelite; cancrinite
sodalites:	sodalite, noselite
helvites:	helvite
boro-:	datolite, homilite
micas:	biotite, lepidomelane, zinnwaldite, tæmolite
rare-earth-:	zircon, thorite; schorlomite; titanite; astrophyllite, johnstrupite, mosandrite, neptunite, keilhauite, benitoite, lorenzenite, rinkite
hydrous:	cenosite
Phosphates; rare-earth-:	xenotime
Columbates; isometric:	pyrochlore, chalcolamprite
orthorhombic:	polymignite
Borates:	nordenskiöldine
Carbonates; calcites:	calcite
Halides; fluorides:	fluorite
Oxides; 2: 3:	corundum
1: 2:	baddeleyite
double; rare-earth-:	ilmenite
Sulfides and arsenides:	löllingite
b. Metamorphosed	
Silicates; micas:	muscovite
hydroxy-:	chlorite
Oxides; 1: 2:	rutile
c. Weathered	
Silicates; hydroxy-:	kaolinite
hydrous; zeolites:	hydronephelite, analcite, natrolite, thomsonite
Carbonates; rare-earth fluo-:	ancylite, cordylite
Oxides; hydroxy-:	bauxite, limonite

I. 2. C. CALCIC PEGMATITES

a. Primary

Silicon oxides:	(quartz)
Feldspars; orthoclases:	microcline
plagioclases:	albite, oligoclase, labradorite
Metasilicates; pyroxenes:	hypersthene; augite
amphiboles:	hornblende
Orthosilicates; garnets:	andradite
scapolites:	wernerite
boro-:	tourmaline
micas:	phlogopite, biotite
rare-earth-:	zircon; titanite
Phosphates; fluo- and chloro-:	apatite
Carbonates:	calcite
Halides; fluorides:	fluorite
Oxides; 1: 2:	rutile
double; spinels:	magnetite
rare-earth-:	ilmenite
Sulfides; nonmetallic:	molybdenite
metallic; 1: 1:	pyrrhotite
1: 2:	pyrite
Elements; nonmetallic:	graphite

b. Metamorphosed

Silicates; epidotes:	epidote
hydroxy-:	chlorite, kaolinite

c. Weathered

Silicon oxides:	quartz, chalcedony, opal
Oxides; hydroxy-:	limonite
Silicates; hydroxy-:	kaolinite

I. 3. HYDROTHERMAL DEPOSITS

a. Primary

Silicon oxides:	quartz, opal
Silicates; feldspars:	orthoclase (adularia, valencianite), hyalophane
pyroxenes:	rhodonite
boro-:	tourmaline
micas:	biotite
Carbonates; calcites:	calcite, dolomite, ankerite, sider- ite, rhodochrosite
miscellaneous:	witherite; bromlite

Sulfates:	celestite, barite, gypsum
Tungstates:	scheelite, hübnerite, wolframite, ferberite, cuprotungstite
Halides; fluorides:	fluorite
Oxides:	hematite, uraninite, magnetite
Sulfides, arsenides, etc.; basic:	domeykite, algodonite, whitneyite, horsfordite, dyscrasite, chilen- ite, stützite, umangite, rickard- ite, maucherite, temiskamite, joseite, wehrlite
2: 1 or 1: 1:	argentite, hessite, petzite, galena, clausthalite, aguilarite, altaite, naumannite, berzelianite, lehr- bachite, eucairite, zorgite, crookesite; chalcocite, stro- meyerite, acanthite; sphalerite, metacinnabarite, tiemannite, onofrite, coloradoite, alaband- ite; cinnabar, covellite, gree- nockite, wurtzite, millerite, niccolite, breithauptite, pyr- rhotite; realgar; polydymite, beyrichite
2: 3:	orpiment, stibnite, bismuthinite, guanajuatite, tetradymite, mel- onite
1: 2:	molybdenite; hauerite, pyrite, smaltite, chloanthite, cobalt- ite, gersdorffite, corynite, ullmannite, sperrylite, laurite, skutterudite, willyamite, mar- casite, löllingite, arsenopyrite, safflorite, rammelsbergite, glau- codotite, alloclasite, kallilite, wolfachite; sylvanite, kren- nerite, nagyagite
double:	bornite, linnæite, cubanite, carrollite, chalcopyrite, stan- nite; sternbergite, chalmersite; teallite; sulvanite
sulfo-salts; acidic:	livingstonite, guejarite, chiviatite, cuprobismutite, rezbanyite

Sulfides, arsenides, etc.;

sulfo-salts; 1:1:

zinkenite, andorite, sartorite, emplectite, chalcostibite, smithite, trechmannite, matildite, galenobismutite, berthierite, hutchinsonite, lorandite, miargyrite

3:2:

plagionite, klaprotholite, baumhauerite, schirmerite, warrenite, dufrenoyite, coşalite, rathite, schapbachite, jamesonite, kobellite, brongniardite, semseyite, diaphorite, freieslebenite

3:1:

bournonite, wittichenite, aikinite, boulangerite, lilianite, stylopyrite, guitermanite, tapalpite; proustite, pyrrargyrite; pyrostilpnite, rittingerite

basic:

tennantite, tetrahedrite, jordanite, meneghinite, geocronite, stephanite, kilbrickenite, beegerite, pearcite, polybasite, polyargyrite

arsenates, etc.:

enargite, famatinite, xanthoconite, epiboulangerite, epigenite, canfieldite, argyrodite, franckeite, cylindrite

Elements:

arsenic, allemontite, antimony, bismuth, copper, silver, gold

b. Metamorphosed: Many of the above minerals are also produced by metamorphism

c. Weathered

Silicon oxides:

quartz, chalcedony, opal

Silicates: hydroxy-:

diopside, calamine, chrysocolla

Carbonates; calcites:

calcite, siderite, smithsonite, sphaerocobaltite

aragonites:

aragonite, cerussite

anhydrous-:

bismutospherite

chloro-:

phosgenite

Carbonates; hydroxy-:	malachite, azurite, hydrozincite, aurichalcite, hydrocerussite, bismutite, liebigite, voglite
Phosphates and arsenates;	
chloro-:	pyromorphite, mimetite, vanadinite
hydrous-:	libethenite, olivenite, adamite, descloizite, brackebuschite, psittacinite, dihydrite, erinite, pseudomalachite, clinoclasite, arseniosiderite, atelestite, roselite, trichalcite, hopeite, vivianite, erythrite, annabergite, cabrerite, köttigite, scorodite
hydroxy-:	parahopeite, haidingerite, phar-macolite, forbesite, conichal-cite, bayldonite, tagilite, leucochalcite, euchroite, corn-wallite, tyrolite, chalcophyllite, ludlamite, wavellite, liskeardite, pharmacosiderite, mazapilite, lironite, chenevixite, chalcosiderite, trogerite, plumbogummite
double UO_2 -:	autunite, uranocircite, torber-nite, uranospinite, zeunerite, walpurgite, rhagite, mixite
Nitrates:	gerhardtite
Arsenites, antimonites:	trippkeite, pitticite
Uranates:	uranospherite, gummite
Antimonates:	bindheimite
Tungstates:	powellite, stolzite, wulfenite, raspite, molybdite
Sulfates; anhydrous:	barite, anglesite, crocoite, phœni-cochroite, vauquelinite
basic (oxy)-:	lanarkite
chloro-:	caracolite, connellite, spangolite, leadhillite
hydrous-:	gypsum, ilesite, epsomite, goslarite, morenosite, melanterite, mal-lardite, pisanite, bieberite, chalcanthite, kröhnkite, römer-ite, boothite

Sulfates; hydroxy-:	caledonite, brochantite, linarite, langite, herrengrundite, cyanotrichite, serpierite, castanite, copiapite, knoxvillite, utahite, amarantite, fibroferrite, glockerite, felsobanyite, botryogen, quetenite, zincaluminite
Tellurates, etc.:	montanite, emmonsite, durdenite, chalcomenite
Halides; simple:	calomel, marshite, miersite, nantokite, cerargyrite, embolite, bromyrite, iodyrite, cotunnite, cuproiodargyrite
oxy-:	matlockite, schwartzembergite, laurionite, paralaurionite, penfieldite, daviesite, fiedlerite, atacamite, egglesonite, terlinguaite, kleinite
Oxides; 2: 1:	cuprite
1: 1:	manganosite, bunsenite, tenorite, montroydite, massicot
2: 3:	arsenolite, senarmontite, claudetite, valentinite, bismite; hematite
1: 2:	tellurite, cervantite, stibiconite, pyrolusite, plattnerite
1: 3:	tungstite
double:	minium
hydroxy-:	limonite, manganite (incl. psilomelane)
oxy-sulfides:	kermesite, voltzite
Elements; nonmetallic:	sulfur, arsenic
metallic:	gold, silver, copper, mercury, amalgam

I. 4. FUMEROLIC DEPOSITS

(All primary)

Arsenates:	scorodite
Sulfates; anhydrous:	mascagnite, apthitalite, hydrocyanite, anglesite, dolerophanite, palmierite

Sulfates; hydrous:	epsomite, boussingaultite, mirabilite, gypsum, pieromerite, cyanochroite, coquimbite, alunogen, voltaite, metavoltine
Halides; anhydrous:	halite, sylvite, sal-ammoniac, hydrophilite, chloromagnesite, scacchite, molysite, hieratite, cotunnite
oxy-:	matlockite, nocerite
hydrous:	kremersite, erythrosiderite
Oxides; 1:1:	tenorite, massicot
2:3:	hematite
double:	magnesioferrite
Hydroxides:	sassolite
Sulfides:	realgar, cinnabar, hauerite
Elements:	sulfur, selen-sulfur

II. 1. A. SILICEOUS (AND ARGILLACEOUS) SEDIMENTS

a. Primary

Silicon oxides:	quartz, chalcedony
Feldspars:	orthoclase; albite
Metasilicates:	augite, hornblende
Orthosilicates; garnets:	almandite
olivines:	olivine
boro-:	tourmaline
micas:	muscovite, biotite
oxy-:	cyanite
hydroxy-:	staurolite, epidote
rare-earth-:	zircon; titanite
misc.:	glauconite
Phosphates; rare-earth-:	monazite, xenotime
fluo-:	apatite
Antimonates:	tripuhyite, lewisite, derbylite
Oxides; 2:3:	corundum, hematite
1:2:	rutile, cassiterite, baddeleyite
double; spinels:	spinel, magnetite, chromite
rare-earth-:	ilmenite, senaite
Elements; nonmetallic:	diamond, graphite
metallic:	copper, silver, gold, palladium, osmium, iridium, platinum

b. Metamorphosed

Silicon oxides:	quartz
Feldspars:	orthoclase; microcline; albite
Metasilicates:	hornblende, glaucophanite, crocidolite, iolite
Orthosilicates; garnets:	almandite
boro-:	tourmaline, dumortierite
micas:	muscovite, paragonite, biotite, chloritoid
oxy-:	cyanite, sillimanite, andalusite
epidotes:	zoisite, epidote, piedmontite
hydroxy-:	staurolite
rare-earth-:	zircon; titanite
Phosphates; fluo-:	apatite
Oxides; 2: 3:	corundum, hematite
1: 2:	rutile
double; spinels:	spinel, magnetite, hercynite
rare-earth-:	ilmenite
Sulfides:	pyrite, molybdenite
Elements; nonmetallic:	graphite

c. Weathered

Silicates; hydroxy:	kaolinite
Sulfates; hydrous:	alunogen, kalinite, halotrichite, carphosiderite
Phosphates, etc.:	carnotite

II. 1. B. CALCAREOUS (AND MAGNESIAN) SEDIMENTS

a. Primary

Silicon oxides:	quartz
Silicates; hydroxy-:	kaolinite
Carbonates; calcites:	calcite, dolomite, ankerite, siderite
aragonites:	aragonite
Oxides; hydroxy-:	limonite
Elements:	(carbon)

b. Metamorphosed

Silicon oxides:	quartz
Feldspars; orthoclases:	hyalophane
plagioclases:	labradorite, anorthite
Metasilicates; pyroxenes:	diopside, hedenbergite, schefferite, augite; wollastonite, rhodonite, babingtonite

Metasilicates; amphiboles:	tremolite, edenite, hornblende
Orthosilicates: garnets:	grossularite, andradite, uvarovite
nephelites:	kaliophilite, microsommite
sodalites:	lazurite
chrysolites:	monticellite, forsterite
scapolites:	meionite, wernerite, mizzonite, marialite, sarcolite
melilites:	melilite, gehlenite, fuggelite
vesuvianites:	vesuvianite
epidotes:	zoisite, epidote
hydroxy-:	ilvaite
boro-:	danburite, tourmaline, axinite, serendibite
fluo-:	proectite, humite, chondrodite, clinohumite, cuspidine
micas:	phlogopite, biotite
rare-earth-:	zircon; titanite, guarinite
hydrrous-:	chlorites (several varieties), hille- brandite; glauconite, pholi- dolite
carbonate-:	spurrite
Phosphates; fluo-:	apatite
Columbates:	columbite
Borates:	warwickite, colemanite
Halides; fluorides:	fluorite
Oxides; 1: 1:	periclasite
2: 3:	corundum
double; spinels:	spinel (several varieties), magne- tite
rare-earth-:	ilmenite
Sulfides:	pyrrhotite, molybdenite, pyrite
Elements; nonmetallic:	graphite, sulfur
c. Weathered	
Sulfates:	barite, gypsum
Carbonates:	calcite, aragonite
Nitrates:	nitromagnesite, nitrocalcite

II. 1. C. FERRUGINOUS (ALSO MANGANIFEROUS AND ZINCIFEROUS) SEDIMENTS

a. Primary	
Silicon oxides:	(quartz)
Silicates:	glauconite

Carbonates:	ankerite, siderite
Oxides; 2: 3:	hematite
1: 2:	polianite, pyrolusite
double:	magnetite, hausmannite, braunite
hydroxy-:	bauxite, manganite, limonite, goethite, xanthosiderite, turgite
hydroxides:	psilomelane (including varieties)
b. Metamorphosed ⁶	
Silicon oxides:	quartz
Feldspars:	microcline, albite, oligoclase, celsian
Metasilicates; pyroxenes:	augite, schefferite, jeffersonite, urbanite, rhodonite
amphiboles:	hornblende
barysilites:	barysilite, ganomalite, hardy- stonite, hyalotekite
Orthosilicates; garnets:	andradite, spessartite
nephelites:	nasonite
chrysolites:	tephroite, roepperite, glaucoc- hroite
phenakites:	trimerite, willemite, pyrosmalite
epidotes:	piedmontite, hancockite
misc.:	harstigite, melanotekite, molyb- dophyllite
hydroxy-:	clinohedrite, roeblingite, leuco- phoenicite, bementite, karyo- pilate, neotcite
hydrous:	inesite, ganophyllite
Phosphates, etc.; anhydrous:	carminite, tilasite, berzeliite, mo- nimolite, caryinite, ecdemite, beudantite
hydrous:	brandtite, vivianite, strengite, scorodite, phosphosiderite, bar- randite, koninckite, callainite
hydroxy-:	dufrenite, arseniosiderite, retzian, allactite, ludlamite, hemafibrite, wavellite, fischerite, evansite, peganite, spherite, pharmaco-

⁶ The zinc deposits of Franklin Furnace, N. J., and the manganese deposits of Longban, Sweden, are regarded as belonging here.

	siderite, synadelphite, flinkite, hematolite, arseniopleite, manganostibiite, sarkinite, chondrarsenite, cirrolite, cacozenite, beraunite, calcioferrite, borickite, wardite, zepharovichite
Borates:	sussexite, pinakiolite
Oxides; 1: 1:	manganosite, zincite
2: 3:	hematite
double; spinels:	magnetite, franklinite, gahnite, jacobsonite
misc.:	longbanite
c. Weathered	
Silicon oxides:	quartz, chalcedony
Silicates:	calamine, friedelite, chloropal
Carbonates:	rhodochrosite, smithsonite, hydrozincite
Oxides; hydroxy-:	limonite
Hydroxides:	chalcophanite, pyrochroite

II. 1. D. SALINE SEDIMENTS

a. Primary	
Carbonates; calcites:	calcite, dolomite
aragonites:	aragonite, strontianite
double; hydrous:	natron, gaylussite, trona, pirs-sonite
chloro-, etc.:	northupite, tychite, hanksite, kainite, sulfohalite
Sulfates; anhydrous:	anhydrite, celestite, barite; thenardite, apthitalite, langbeinite, glauberite, vanthoffite
simple, hydrous:	mirabilite, kieserite, epsomite, gypsum
double, hydrous:	leonite, blödite, löweite, picromerite, natrochalcite, syngenite, pickeringite, boussingaultite
Borates; anhydrous:	boracite
simple, hydrous:	borax, pinnoite, ascharite, larderellite, lagonite, bechilite, ulexite, hydroboracite, heintzite
sulfo-:	sulfoborite

Nitrates:	soda-niter, niter
Nitrate-sulfates:	darapskite, nitroglauiberite
Iodates:	dietzite, lautarite
Halides; fluorides:	sellaite, fluorite
chlorides; 1: 1:	halite, sylvite
1: 2:	hydrophilite
hydrous:	bischofite
double:	carnallite, douglasite, tachhydrite, rinneite
Boro-silicates:	bakerite
Oxides:	hematite
Hydroxides:	sassolite

- b. Metamorphosed (a number of the above salts are also formed by rearrangement within salt deposits)
 Elements: sulfur
- c. Weathered (no minerals besides the primary ones are known to result from the weathering of these deposits)

II. 1. E. PHOSPHATIC SEDIMENTS

- a. Primary
 Phosphates: phosphorite
 Miscellaneous: indefinite mixtures of phosphates
 of various elements
- b. Metamorphosed; c. Weathered (products can not be separated)
 Phosphates; normal, hydrous: struvite, collophanite, bobierrite,
 minervite
 acid, hydroxy: monetite
 hydrous: stercorite, brushite, metabrushite,
 martinite, newberyite, hannayite
 Sulfates: mascagnite, taylorite, lecontite
 Carbonates: teschemacherite
 Oxalates: oxammite

II. 1. F. CARBONACEOUS SEDIMENTS

- a. Primary
 Miscellaneous: indefinite mixtures of hydro-
 carbons
- b. Metamorphosed; c. Weathered (products cannot be separated)
 Oxalates: whewellite, humboldtine
 Mellates: mellite

Sulfides:	pyrite
Elements:	graphite
Miscellaneous:	a series of hydrocarbons, many of which have been given names, but few if any of which are really minerals

INDEX OF MINERAL OCCURRENCES.

The symbols here used correspond with those in the "Synopsis."

A

- Acanthite: I. 3. a.
 Acmite: I. 1. B. a.; I. 2. B. a.
 Actinolite: I. 1. D. b.; I. 2. A. a.
 Adamite: I. 3. c.
 Adelite: ? (origin not determined)
 Adularia: see orthoclase
 Ægirite: I. 1. B. a.; I. 2. B. a.
 Enigmatite: see enigmatite.
 Æschynite: see eschynite.
 Agnolite: ?
 Agricolite: ?
 Aguilarite: I. 3. a.
 Aikinite: I. 3. a.
 Alabandite: I. 3. a.
 Alamosite: I. 3. a.
 Albite: I. 1. A. a.; I. 1. B. a.;
 I. 2. A. a.; I. 2. B. a.; I. 2. C. a.;
 II. 1. A. a, b; II. 1. C. b.
 Algodonite: I. 3. a.
 Allactite: II. 1. C. b.
 Allanite: I. 1. A. a.; I. 2. A. a.
 Allemontite: I. 3. a.
 Alloclasite: I. 3. a.
 Allophanite: I. 1. A. c.; I. 1. D. c.
 Almandite: I. 1. A. a.; I. 2. A. a.;
 II. 1. A. b.
 Altaite: I. 3. a.
 Aluminite: ?
 Alunite: I. 1. A. b.
 Alunogen: I. 1. A. c.; I. 4.; II. 1. A. c.
 Amalgam: I. 3. c.
 Amaranthite: I. 3. c.
 Amblygonite: I. 2. A. a.
 Amphibole: see actinolite, asbestos,
 cummingtonite, edenite, grünerite,
 hornblende, jadeite, nephrite,
 pargasite, tremolite.
 Analcite: I. 1. B. a.; I. 1. C. a, b;
 I. 2. B. c.
 Anatase: see octahedrite.
 Anapäite: ?
 Ancyrite: I. 2. B. c.
 Andalusite: I. 2. A. a.; II. 1. A. b.
 Andesine: I. 1. C. a.; I. 1. B. a.
 Andorite: I. 3. a.
 Andradite: I. 1. A. a.; I. 1. B. a.;
 I. 1. C. a.; I. 1. D. a.; I. 2. A. a.;
 I. 2. B. a.; I. 2. C. a.; II. 1. B. b.;
 II. 1. C. b.
 Anglesite: I. 3. c.; I. 4.
 Anhydrite: I. 1. C. b.; II. 1. D. a, b.
 Ankerite: I. 1. D. b.; I. 3. a.;
 II. 1. C. a.
 Annabergite: I. 3. c.
 (Ännerödite: doubtful species.)
 Anorthite: I. 1. C. a.; II. 1. B. b.
 Anorthoclase: I. 1. A. a.; I. 1. B. a.;
 I. 2. A. a.
 Anthophyllite: I. 1. D. b.
 Antimony: I. 3. a.
 Apatite: I. 1. A. a.; I. 1. B. a.;
 I. 1. C. a.; I. 2. A. a.; I. 2. C. a.;
 II. 1. A. a, b; II. 1. B. b.
 Aphrosiderite: see chlorite.
 Aphthitalite: II. 1. D. a, b; I. 4.
 Apjohnite: ?
 Apophyllite: I. 1. C. b.
 Aragonite: I. 1. C. b.; I. 3. c.;
 II. 1. B. a, c; II. 1. D. a.
 Ardennite: ?
 Arfvedsonite: I. 1. B. a.; I. 2. B. a.
 Argentite: I. 3. a, b.
 Argyrodite: I. 3. a.
 Arsenic: I. 3. a, c.
 Arseniopleite: II. 1. C. b.
 Arseniosiderite: I. 3. c.; II. 1. C. b.
 Arsenolite: I. 3. c.
 Arsenopyrite: I. 2. A. a.; I. 3. a.
 Artinite: ?
 Asbestos: I. 1. D. b.
 Asbolite: II. 1. C. a.
 Ascharite: II. 1. D. a.
 Asphaltum: II. 1. F. b.
 Astrolite: ?
 Astrophyllite: I. 2. B. a.
 Atacamite: I. 3. c.
 Atelesite: I. 3. c.
 Atopite: ?
 Augite: I. 1. A. a.; I. 1. C. a.;
 I. 1. D. a.; I. 2. A. a.; I. 2. C. a.;
 II. 1. A. a.; II. 1. B. b.

Aurichalcite: I. 3. c.
 Autunite: I. 2. A. c.
 Axinite: I. 2. A. a.; II. 1. B. b.
 Azurite: I. 3. c.

B

Babingtonite: I. 1. C. a.; II. 1. B. b.
 Baddeleyite: I. 2. B. a.; II. 1. A. a.
 Bakerite: II. 1. D. a.
 Barite: I. 3. a, c.; II. 1. B. c.;
 II. 1. D. a.
 Barkevikite: I. 1. B. a.
 Barrandite: II. 1. C. b.
 Barysilite: II. 1. C. b.
 Barytocalcite: II. 1. D. a.
 Bastnäsäite: I. 2. A. c.
 Bathvillite: II. 1. F. b.
 Baumhauerite: I. 3. a.
 Bauxite: I. 1. A. c.; I. 1. B. c.;
 I. 1. C. b, c.; II. 1. C. a.
 Bayldonite: ?
 Bechilite: II. 1. D. a.
 Beckelite: ?
 Beegerite: I. 3. a.
 Belonesite: ?
 Bementite: II. 1. C. b.
 Benitoite: I. 2. B. a.
 Beraunite: II. 1. C. b.
 Berthierite: I. 3. a.
 Bertrandite: I. 2. A. b.
 Beryl: I. 2. A. a.
 Beryllonite: I. 2. A. b.
 Berzelianite: I. 3. a.
 Berzeliite: II. 1. C. b.
 Beudantite: II. 1. C. b.
 Beyrichite: I. 3. a.
 Bieberite: I. 3. c.
 Bindheimite: I. 3. c.
 (Binnite: doubtful species.)
 Biotite: I. 1. A. a.; I. 1. B. a.;
 I. 1. C. a.; I. 2. A. a.; I. 2. B. a.;
 I. 3. a.; II. 1. A. a, b.; II. 1. B. b.
 Bischoffite: II. 1. D. a.
 Bismite: I. 3. c.
 Bismuth: I. 2. A. a.; I. 3. a.
 Bismuthinite: I. 2. A. a.; I. 3. a.
 Bismutite: I. 2. A. c.; I. 3. c.
 Bismutospherite: I. 2. A. c.; I. 3. c.
 Bixbyite: I. 2. A. a.
 Bloedite: II. 1. D. a.
 Bobierite: II. 1. E. b.
 Bombicite: II. 1. F. b.
 Boothite: I. 3. c.
 Boracite: II. 1. D. a.
 Borax: II. 1. D. a.
 Borickite: II. 1. C. b.
 Bornite: I. 2. A. a.; I. 3. a, b.
 Botryogen: I. 3. c.
 Boulangerite: I. 3. a.
 Bournonite: I. 3. a.
 Boussingaultite: I. 4.; II. 1. D. a.

Brackebuschite: I. 3. c.
 Brandtite: II. 1. C. b.
 Braunite: II. 1. C. a.
 Breithauptite: I. 3. a.
 Brewsterite: I. 1. C. b.
 Brochantite: I. 3. c.
 Bromlite: I. 3. a.
 Bromyrite: I. 3. c.
 Brongniardite: I. 3. a.
 Brookite: I. 1. A. b.; I. 2. A. a.
 Brucite: I. 1. D. c.
 Brugnatellite: ?
 Brushite: II. 1. E. b.
 Bunsenite: I. 3. c.
 Bytownite: I. 1. C. a.; I. 1. D. a.

C

Cabrerite: I. 3. c.
 Cacozenite: II. 1. C. b.
 Calamine: I. 3. c.; II. 1. C. c.
 Calcioferrite: II. 1. C. b.
 Calciovolborthite: ?
 Calcite: I. 1. C. b.; I. 1. D. b, c.;
 I. 2. A. a.; I. 2. B. a.; I. 2. C. a.;
 I. 3. a, c.; II. 1. B. a, b, c.;
 II. 1. D. a.
 Caledonite: I. 3. c.
 Callainite: II. 1. C. b.
 Calomel: I. 3. c.
 Cancrinite: I. 1. B. a.; I. 2. B. a.
 Canfieldite: I. 3. a.
 Capellenite: I. 2. B. a.
 Caracolate: I. 3. c.
 Carminite: II. 1. C. b.
 Carnallite: II. 1. D. a.
 Carnotite: II. 1. A. c.
 Carpholite: I. 2. A. a.
 Carphosiderite: II. 1. A. c.
 Carrolite: I. 3. a.
 Caryinite: II. 1. C. b.
 Caryocerite: I. 2. B. a.
 Caryopilite: see Karyopilite.
 Cassiterite: I. 1. A. a.; I. 2. A. a.;
 II. 1. A. a.
 Castanite: I. 3. c.
 Catapleiite: I. 2. B. a.
 Celadonite: ?
 Celestite: I. 3. a.; II. 1. D. a.
 Celsian: II. 1. C. b.
 Cenosite: I. 2. B. a.
 Cerargyrite: I. 3. c.
 Cerite: ?
 Cerussite: I. 3. c.
 Cervantite: I. 3. c.
 Ceylonite: I. 1. A. a.; I. 1. B. a.;
 II. 1. B. b.
 Chabazite: I. 1. C. b.; I. 2. A. a.
 Chalcantite: I. 3. c.
 Chalcadony: I. 1. A. c.; I. 1. D. c.;
 I. 2. C. c.; I. 3. c.; II. 1. A. a.;
 II. 1. C. c.

Chalcocite: I. 3. a, b.
 Chalcolamprite: I. 2. B. a.
 Chalcomenite: I. 3. c.
 Chalcophanite: I. 3. c.; II. 1. C. c.
 Chalcophyllite: I. 3. c.
 Chalcopyrite: I. 1. A. a.; I. 1. C. a.;
 I. 1. C. b.; I. 1. D. a.; I. 2. A. a.;
 I. 3. a.
 Chalcosiderite: I. 3. c.
 Chalcostibite: I. 3. a.
 Chalmersite: I. 3. a.
 Chenevixite: I. 3. c.
 Childrenite: I. 2. A. a.
 Chilenite: I. 3. a.
 Chiolite: I. 2. A. a.
 Chiviatite: I. 3. a.
 Chloanthite: I. 3. a.
 Chlorite: I. 1. A. b, c.; I. 1. B. b.;
 I. 1. C. b.; I. 1. D. b.; I. 2. A. c.;
 I. 2. B. b.; I. 2. C. b. Includes
 aphrosiderite, clinochlore, delessite,
 diabantite, penninite, prochlorite,
 strigorite.
 Chloritoid: II. 1. A. b.
 Chloromagnesite: I. 4.
 Chloromanganokalite: ?
 Chloropal: I. 1. A. c.; II. 1. C. c. Includes
 nontronite.
 Chondroarsenite: II. 1. C. b.
 Chondrodite: II. 1. B. b.
 Chromite: I. 1. D. a.; II. 1. A. a.
 Chrysoberyl: I. 2. A. a.
 Chrysocolla: I. 3. c.
 Chrysolite: see olivine.
 Chrysotile: see serpentine.
 Churchite: ?
 (Cimolite: doubtful species.)
 Cinnabar: I. 3. a.; I. 4.
 Cirrolite: II. 1. C. b.
 Claudetite: I. 3. c.
 Clausthalite: I. 3. a.
 Clinochlore: see chlorite.
 Clinoclasite: I. 3. c.
 Clinohedrite: II. 1. C. b.
 Clinohumite: II. 1. B. b.
 Coal: II. 1. F. b.
 Cobaltite: I. 3. a.
 Colemanite: II. 1. B. b.
 Collophanite: II. 1. E. b.
 (Collyrite: doubtful species.)
 Coloradoite: I. 3. a.
 Columbite: I. 2. A. a.
 Conichalcite: I. 3. c.
 Connarite: ?
 Connellite: I. 3. c.
 Cookeite: I. 2. A. c.
 Copiapite: I. 3. c.
 Copper: I. 1. C. b.; I. 3. a, c.;
 II. 1. A. a.
 Coquimbite: I. 4.
 Cordylite: I. 2. B. c.

Cornwallite: I. 3. c.
 (Corundophyllite: doubtful species.)
 Corundum: I. 1. A. a.; I. 1. D. a, b.;
 I. 2. A. a.; I. 2. B. a.;
 II. 1. A. a, b.; II. 1. B. b.
 Corynite: I. 3. a.
 Cosalite: I. 3. a.
 Cotunnite: I. 3. c.; I. 4.
 Covellite: I. 3. a, b.
 Crednerite: ?
 Cristobalite: I. 1. C. a.
 Crocidolite: II. 1. A. b.
 Crocoite: I. 3. c.
 Cronstedtite: I. 3. a.
 Crookesite: I. 3. a.
 Cryolite: I. 2. A. a.
 Cryolithionite: I. 2. A. a.
 Cubanite: I. 3. a.
 Cuprite: I. 3. c.
 Cuprobismutite: I. 3. a.
 Cuproiodargyrite: I. 3. c.
 Cuprotungstite: I. 3. a.
 Cuspidine: II. 1. B. b.
 Cyanite: I. 2. A. a.; II. 1. A. a, b.
 Cyanochroite: I. 4.
 Cyanotrichite: I. 3. c.
 Cylindrite: I. 3. a.
 Cyprusite: ?

D

Dahllite: ?
 Danalite: see helvite.
 Danburite: II. 1. B. b.
 (Daphnite: doubtful species.)
 Darapskite: II. 1. D. a.
 Datolite: I. 1. C. b.; I. 2. A. a.;
 I. 2. B. a.
 Daubreeite: ?
 Daubreelite: meteoritic.
 Daviesite: I. 3. c.
 Dawsonite: ?
 Delessite: see chlorite.
 Delorenzenite: ?
 Derbylite: II. 1. A. a.
 Descloizite: I. 3. c.
 Deweylite: I. 1. D. b.
 Diabantite: see chlorite.
 (Diadochite: doubtful species.)
 Diamond: I. 1. D. a.; II. 1. A. a.
 Diaphorite: I. 3. a.
 Diaspore: I. 1. A. b.; I. 1. B. b.
 Dickinsonite: I. 2. A. b.
 Dietrichite: ?
 Dietzite: II. 1. D. a.
 Dihydrite: I. 3. c.
 Diopside: I. 1. C. a.; II. 1. B. b.
 Dioptase: I. 3. c.
 Dolerophanite: I. 4.
 Dolomite: I. 1. D. b.; I. 3. a.;
 II. 1. B. a, b, c.; II. 1. D. a.
 Domeykite: I. 3. a.

Dopplerite: II. 1. F. b.
 Douglassite: II. 1. D. a.
 Dufrenite: II. 1. C. b.
 Dufrenoyite: I. 3. a.
 Dumortierite: I. 2. A. a.; II. 1. A. b.;
 Durangite: ?
 Durdenite: I. 3. c.
 Dysanalyte: ?
 Dyscrasite: I. 3. a.
 Dysodile: II. 1. F. b.

E

Ecdemite: II. 1. C. b.
 Edenite: II. 1. B. b.
 Edingtonite: I. 1. C. b.
 Egglestonite: I. 3. c.
 Elaterite: II. 1. F. b.
 Elpidite: I. 2. B. a.
 Embolite: I. 3. c.
 Emmonsite: I. 3. c.
 Emplectite: I. 3. a.
 Enargite: I. 3. a.
 Enigmatite: I. 1. B. a.; I. 1. C. a.;
 I. 2. B. a.
 Enstatite: I. 1. C. a.; I. 1. D. a.
 Eosphorite: I. 2. A. b.
 Epiboulangerite: I. 3. a.
 Epididymite: I. 2. B. a.
 Epidote: I. 1. A. a.; I. 1. C. a, b.;
 I. 1. D. b.; I. 2. A. a.; I. 2. C. b.;
 II. 1. B. b.
 Epigenite: I. 3. a.
 Epistilbite: I. 1. C. b.
 Epsomite: I. 1. D. c.; I. 3. c.; I. 4.;
 II. 1. D. a.
 Eremeyevite: I. 2. A. a.
 Erionite: ?
 Erinite: I. 3. c.
 Erythrite: I. 3. c.
 Erythrosiderite: I. 4.
 Eschynite: I. 2. A. a.
 Ettringite: ?
 Eucairite: I. 3. a.
 Euchroite: I. 3. c.
 Euclase: I. 2. A. a.
 Eucryptite: I. 2. A. b.
 Eudialyte: I. 2. B. a.
 Eudidymite: I. 2. B. a.
 Eulytite: ?
 Euxenite: I. 2. A. a.
 Evansite: II. 1. C. b.

F

Fairfieldite: I. 2. A. b.
 Famatinite: I. 3. a.
 Faujasite: I. 1. C. b.
 Fayalite: I. 1. A. a.
 Felsobanyite: I. 3. c.
 Fergusonite: I. 2. A. a. Includes
 sipylite.

Ferronatrite: ?
 Fibroferrite: I. 3. c.
 Fichtelite: II. 1. F. a.
 Fiedlerite: I. 3. c.
 Fillowite: I. 2. A. b.
 Fischerite: II. 1. C. b.
 Flinkite: II. 1. C. b.
 Florencite: ?
 Fluellite: I. 2. A. c.
 Fluocerite: I. 2. A. a.
 Fluorite: I. 1. A. a.; I. 1. B. a.;
 I. 2. A. a.; I. 2. B. a.; I. 2. C. a.;
 I. 3. a.; II. 1. B. c.; II. 1. D. a.
 Forsterite: I. 1. C. a.; II. 1. B. b.
 Forbesite: I. 3. c.
 Franckeite: I. 3. a.
 Franklinite: II. 1. C. b.
 Freieslebenite: I. 3. a.
 Friedelite: II. 1. C. c.
 Fuggerite: II. 1. B. b.

G

Gadolinite: I. 1. A. a.; I. 2. A. a.
 Gahnite: I. 2. A. a.; II. 1. C. b.
 Galena: I. 1. C. b.; I. 2. A. a.; I. 3. a.
 Galenobismutite: I. 3. a.
 Ganomalite: II. 1. C. b.
 Ganophyllite: II. 1. C. b.
 Garnet: see almandite, andradite,
 grossularite, pyrope, spessartite,
 uvarovite.
 Garnierite: I. 1. D. c.
 Gaylussite: II. 1. D. a.
 Gearksutite: I. 2. A. b.
 Gehlenite: II. 1. B. b.
 Geikielite: II. 1. A. a.
 Genthite: I. 1. D. c.
 Geocerite: II. 1. F. b.
 Geocronite: I. 3. a.
 Georgiadesite: ?
 Geomyrite: ?
 Gerhardite: I. 3. c.
 Gersdorffite: I. 3. a.
 Gibbsite: I. 1. A. c.; I. 1. B. c.;
 I. 1. C. b.
 Gismondite: I. 1. C. b.
 Glauberite: II. 1. D. a.
 Glaucocroite: II. 1. C. b.
 Glaucodotite: I. 3. a.
 Glauconite: II. 1. A. a.; II. 1. C. a.
 Glaucophanite: I. 1. C. b.; II. 1. A. b.
 Glockerite: I. 3. c.
 Gmelinite: I. 1. C. b.
 Goethite: II. 1. C. a.
 Gold: I. 1. A. a.; I. 2. A. a.; I. 3. a, c.;
 II. 1. A. a.
 Gonardite: ?
 Goslarite: I. 3. c.
 Goyazite: ?
 Graftonite: I. 2. A. a.
 Grandidierite: I. 2. A. a.

Graphite: I. 1. A. a.; I. 1. C. a.;
 I. 1. D. a.; I. 2. A. a.; I. 2. C. a.;
 II. 1. A. b.; II. 1. B. b.;
 II. 1. F. b.
 Greenockite: I. 3. a.
 Grossularite: II. 1. B. b.
 Grünerite: I. 1. C. b.
 Guano: II. 1. E. a.
 Guanajuatite: I. 3. a.
 Guarinite: II. 1. B. b.
 Guejarite: I. 3. a.
 Guitermanite: I. 3. a.
 Gummite: I. 2. A. c.; I. 3. c.
 Gypsum: I. 1. C. b.; I. 3. a, c.;
 I. 4.; II. 1. B. c.; II. 1. D. a.
 Gyrolite: I. 1. C. b.

H

Hackmanite: ?
 Haidingerite: I. 3. c.
 Hainite: I. 2. B. a.
 Halite: I. 4.; II. 1. D. a.
 (Halloysite: doubtful species.)
 Halotrichite: I. 1. A. c.; II. 1. A. c.
 Hambergite: I. 2. A. a.
 Hamlinite: I. 2. A. a.
 Hancockite: II. 1. C. b.
 Hanksite: II. 1. D. a.
 Hannayite: II. 1. E. b.
 Hardystonite: II. 1. C. b.
 Harmotome: I. 1. C. b.
 Harstigit: II. 1. C. b.
 Hartite: II. 1. F. a.
 Hatchettite: II. 1. F. b.
 Hatchettolite: I. 2. A. a.
 Hauecoronite: ?
 Hauerite: I. 3. a.; I. 4.
 Hausmannite: II. 1. C. a.
 Hauynite: I. 1. B. a.; I. 2. B. a.
 Hedenbergite: I. 2. B. a.; II. 1. B. b.
 Heintzite: II. 1. D. a.
 Hellandite: I. 2. A. a.
 Helvite: I. 2. A. a.; I. 2. B. a. Includes
 danolite.
 Hemafibrite: II. 1. C. b.
 Hematite: I. 1. A. a.; I. 1. C. b.;
 I. 2. A. a.; I. 3. a, c.; I. 4.;
 II. 1. A. a, b.; II. 1. C. a, b.
 Hematolite: II. 1. C. b.
 Hercynite: II. 1. A. b.
 Herderite: I. 2. A. b.
 Herrngrundite: I. 3. c.
 Hessite: I. 3. a.
 Heulandite: I. 1. C. b.
 Hibschie: ?
 Hieratite: I. 4.
 Hillebrandite: II. 1. B. b.
 Hiortdahlite: I. 2. B. a.
 Hisingerite: ?
 Hoernesite: ?
 Homilite: I. 2. B. a.

Hopeite: I. 3. c.
 Hornblende: I. 1. A. a.; I. 1. C. a.;
 I. 2. A. a.; I. 2. C. a.;
 II. 1. A. a, b.; II. 1. B. b.
 Horsfordite: I. 3. a.
 Hortonolite: ?
 Howlite: II. 1. D. a.
 Hübnerite: I. 2. A. a.; I. 3. a.
 Humboldtine: II. 1. B. b.; II. 1. F. c.
 Humite: II. 1. B. b.
 Hureaulite: I. 2. A. b.
 Hutchinsonite: I. 3. a.
 Hyalophane: I. 3. a.; II. 1. B. b.
 Hyalotekite: II. 1. C. b.
 Hydroboracite: II. 1. D. a.
 Hydrocerussite: I. 3. c.
 Hydrocyanite: I. 4.
 Hydrogiobertite: ?
 Hydromagnesite: I. 1. D. c.
 Hydronephelite: I. 1. B. c.; I. 1. C. b.;
 I. 2. B. c.
 Hydrophilite: I. 4.; II. 1. D. a.
 Hydrotalcite: I. 1. D. b.
 Hydrozincite: I. 3. c.; II. 1. C. c.
 Hypersthene: I. 1. C. a.; I. 1. D. a.;
 I. 2. C. a.

I

Idocrase: see vesuvianite.
 Ihleite: ?
 Ilesite: I. 3. c.
 Ilmenite: I. 1. A. a.; I. 1. B. a.;
 I. 1. C. a.; I. 2. A. a.; I. 2. B. a.;
 I. 2. C. a.; II. 1. A. a, b.;
 II. 1. B. b.
 Ilvaite: I. 1. B. b.; II. 1. B. b.
 Inesite: II. 1. C. b.
 Iodobromite: ?
 Iodyrite: I. 3. c.
 Iolite: I. 1. A. a.; I. 2. A. a.;
 II. 1. A. b.
 Iridium: I. 1. D. a.; II. 1. A. a.
 Iridosmine: I. 1. D. a.
 Iron: I. 1. C. a.; I. 1. D. a.

J

Jacobsite: II. 1. C. b.
 Jadeite: I. 1. D. b.
 Jamesonite: I. 3. a.
 Jarosite: I. 1. A. c.
 Jefferisite: see vermiculite.
 Jeffersonite: II. 1. B. b.
 Jeremejevite: see eremeyevite.
 Johnstrupite: I. 2. B. a.
 Jordanite: I. 3. a.
 Joseite: I. 3. a.

K

Kainite: II. 1. D. a.
 Kalinite: II. 1. A. c.

Kaliophilite: II. 1. B. b.
 Kallilite: I. 3. a.
 Kaolinite: I. 1. A. b, c.; I. 1. B. c.;
 I. 1. C. b.; I. 2. A. c.; I. 2. B. c.;
 I. 2. C. b, c.; II. 1. A. c.;
 II. 1. B. a.
 Karyopilitite: II. 1. C. b.
 Keilhauite: I. 2. B. a.
 Kentrolite: ?
 Kermesite: I. 3. c.
 Kieserite: II. 1. D. a.
 Kilbrickenite: I. 3. a.
 Klaprotholite: I. 3. a.
 Kleinite: I. 3. c.
 Knebelite: I. 1. D. a.
 Knopite: ?
 Knolite: II. 1. F. b.
 Knoxvillite: I. 3. c.
 Kobellite: I. 3. a.
 Koninckite: II. 1. C. b.
 Kornerupine: ?
 Köttigite: I. 3. c.
 Kraurite: ?
 Kremersite: I. 4.
 Krennerite: I. 3. a.
 Kröhnkite: I. 3. c.
 Krugite: II. 1. D. a.

L

Labradorite: I. 1. C. a.; I. 1. D. a.;
 I. 2. C. a.; II. 1. B. b.
 Lagonite: II. 1. D. a.
 Lanarkite: I. 3. c.
 Långbanite: see longbanite.
 Langbeinite: II. 1. D. a.
 Langite: I. 3. c.
 Lansfordite: ?
 Lanthanite: I. 2. A. c.
 Larderellite: II. 1. D. a.
 Laubanite: I. 1. C. b.
 Laumontite: I. 1. C. b.
 Laurionite: I. 3. c.
 Laurite: ?
 Lautarite: II. 1. D. a.
 Låvenite: see lovenite.
 Lawrencite: meteoritic.
 Lawsonite: I. 1. C. b.
 Lazulite: II. 1. A. a.
 Lazurite: II. 1. B. b.
 Lead: I. 3. c.
 Leadhillite: I. 3. c.
 Lecontite: II. 1. E. b.
 Lehrbachite: I. 3. a.
 Leonite: II. 1. D. a.
 Lepidolite: I. 2. A. a.
 Lepidomelane: I. 2. B. a.
 Leucite: I. 1. B. a.; I. 2. B. a.
 Leucochalcite: I. 3. c.
 Leucopetrite: II. 1. F. b.
 Leucophanite: I. 2. B. a.
 Leucophœnicite: II. 1. C. b.

Leucospheinite: I. 2. B. a.
 Levynite: I. 1. C. b.
 Lewisite: II. 1. A. a.
 Libethenite: I. 3. c.
 Liebigite: I. 2. A. c.; I. 3. c.
 Lillianite: I. 3. a.
 Limnite: II. 1. C. a.
 Limonite: I. 1. A. c.; I. 1. B. c.;
 I. 1. C. b, c.; I. 1. D. c.;
 I. 2. A. c.; I. 2. B. c.; I. 2. C. c.;
 I. 3. c.; II. 1. B. a.; II. 1. C. a, c.
 Linarite: I. 3. c.
 Lindackerite: ?
 Linnæite: I. 3. a.
 Liroconite: I. 3. c.
 Liskeardite: I. 3. c.
 Lithiophilite: I. 2. A. a.
 Livingstonite: I. 3. a.
 Löllingite: I. 2. B. a.; I. 3. a.
 Longbanite: II. 1. C. b.
 Lorandite: I. 3. a.
 Lorenzenite: I. 2. B. a.
 Lossenite: ?
 Lovenite: I. 2. B. a.
 Löweite: II. 1. D. a.
 Löwigite: ?
 Ludlamite: I. 3. c.; II. 1. C. b.
 Ludwigite: ?
 Lünebergite: ?

M

Mackintoshite: I. 2. A. a.
 Magnesioferrite: I. 4.
 Magnesite: I. 1. D. c.
 Magnetite: I. 1. A. a.; I. 1. C. a.;
 I. 1. D. a, b.; I. 2. A. a.;
 I. 2. C. a.; I. 3. a.; II. 1. A. a, b.;
 II. 1. C. a, b.
 Malachite: I. 2. A. c.; I. 3. c.
 Mallardite: ?
 Manganite: I. 1. A. c.; I. 2. A. c.;
 I. 3. c.; II. 1. C. a.
 Manganosite: I. 3. c.; II. 1. C. b.
 Manganostibiite: II. 1. C. b.
 Marcasite: I. 3. a.
 Margarite: I. 1. D. c.
 Marialite: II. 1. B. b.
 Marshite: I. 3. c.
 Martinite: II. 1. E. b.
 Mascagnite: I. 4.; II. 1. E. b.
 Massicot: I. 3. c.; I. 4.
 Matildite: I. 3. a.
 Matlockite: I. 3. c.; I. 4.
 Mauzeilite: ?
 Mazapilite: I. 3. c.
 Meionite: II. 1. B. b.
 Melanite: I. 1. B. a.
 Melanocerite: I. 2. B. a.
 Melanotekite: II. 1. C. b.
 Melanterite: I. 3. c.
 Melilite: I. 1. B. a.; I. 1. C. a.;
 II. 1. B. b.

Meliphanite: I. 2. B. a.
 Mellite: II. 1. F. c.
 Melonite: I. 3. a.
 Mendipite: ?
 Mendozite: ?
 Meneghinite: I. 3. a.
 Mercury: I. 3. c.
 Mesitite: ?
 Mesolite: I. 1. C. b.
 Messelite: ?
 Metabrushite: II. 1. E. b.
 Metacinnabarite: I. 3. a.
 Metavoltine: I. 4.
 Miargyrite: I. 3. a.
 Microcline: I. 1. A. a.; I. 1. B. a.;
 I. 2. A. a.; I. 2. B. a.; I. 2. C. a.;
 II. 1. A. b.; II. 1. C. b.
 Microlite: I. 2. A. a.
 Microsomite: I. 1. B. a.
 Miersite: I. 3. c.
 Milarite: I. 2. A. a.
 Millerite: I. 1. D. b.; I. 3. a.
 Mimetite: I. 3. c.
 Minervite: II. 1. E. b.
 Minium: I. 3. c.
 Mirabilite: I. 4.; II. 1. D. a.
 Misenite: ?
 Mixite: I. 3. c.
 Mizzonite: II. 1. B. b.
 Molybdenite: I. 1. A. a.; I. 2. C. a.;
 I. 2. A. a.; I. 3. a.; II. 1. B. b.
 Molybdate: I. 2. A. c.; I. 3. c.
 Molybdophyllite: II. 1. C. b.
 Molysite: I. 4.
 Monazite: I. 1. A. a.; I. 2. A. a.;
 II. 1. A. a.
 Monetite: II. 1. E. b.
 Monimolite: II. 1. C. b.
 Montanite: I. 3. c.
 Monticellite: II. 1. B. b.
 Montmorillonite: I. 2. A. c.
 Montroydite: I. 3. c.
 Mordenite: I. 1. C. b.
 Morenosite: ?
 Mosandrite: I. 2. B. a.
 Mossite: I. 2. A. a.
 Muscovite: I. 1. A. a, b.; I. 1. B. b.;
 I. 1. D. c.; I. 2. A. a, b.;
 I. 2. B. b.; II. 1. A. a, b.

N

Nadorite: ?
 Nagyagite: I. 3. a.
 Nantokite: I. 3. c.
 Narsarsukite: I. 2. B. a.
 Nasonite: II. 1. C. b.
 Natrochalcite: II. 1. D. a.
 Natrolite: I. 1. B. c.; I. 1. C. b.;
 I. 2. B. c.
 Natron: II. 1. D. a.
 Natrophilite: I. 2. A. b.

Naumannite: I. 3. a.
 Neotantalite: ?
 Neotocite: II. 1. C. b.
 Nephelite: I. 1. B. a.; I. 2. B. a.
 Neptunite: I. 2. B. a.
 Nesquehonite: ?
 Newberryite: II. 1. E. b.
 Newtonite: ?
 Niccolite: I. 1. D. a.; I. 3. a.
 Nickel: I. 1. D. a.
 Nitre: II. 1. D. a.
 Nitrobarite: ?
 Nitrocalcite: II. 1. B. c.
 Nitroglauherite: II. 1. D. a.
 Nitromagnesite: II. 1. B. c.
 Nocerite: I. 4.
 Nontronite: see chloropal.
 Nordenskiöldite: I. 2. B. a.
 Northupite: II. 1. D. a.
 Noselite: I. 1. B. a.; I. 2. B. a.

O

Ochrolite: ?
 Octahedrite: I. 1. A. b.
 Okenite: I. 1. C. b.
 Oldhamite: meteoritic.
 Oligoclase: I. 1. A. a.; I. 1. B. a.;
 I. 1. C. a.; I. 2. A. a.; I. 2. B. a.;
 I. 2. C. a.; II. 1. C. b.
 Olivenite: I. 3. c.
 Olivine: I. 1. C. a.; I. 1. D. a.;
 II. 1. A. a.
 Onofrite: I. 3. a.
 Opal: I. 1. A. c.; I. 1. D. c.;
 I. 2. A. c.; I. 2. C. c.; I. 3. a, c.
 Orpiment: I. 3. a.
 Orthoclase: I. 1. A. a, b.; I. 1. B. a.;
 I. 1. D. a.; I. 2. A. a.; I. 2. B. a.;
 I. 2. C. a.; I. 3. a.; II. 1. A. a, b.
 Osmium: I. 1. D. a.; II. 1. A. a.
 Oxammite: II. 1. E. b.

P

Pachnolite: I. 2. A. b.
 Palladium: I. 1. D. a.; II. 1. A. a.
 Palmierite: I. 4.
 Paragonite: I. 2. A. a.; II. 1. A. b.
 Parahopeite: I. 3. c.
 Paralaurionite: I. 3. c.
 Paraluminite: ?
 Paratacamite: ?
 Pargasite: II. 1. B. b.
 Parisite: I. 2. A. a.
 Partschinite: ?
 Pearceite: I. 3. a.
 Peat: II. 1. F. a.
 Pectolite: I. 1. C. b.
 Peganite: II. 1. C. b.
 Penfieldite: I. 3. c.
 Penninite: see chlorite.

Pentlandite: I. 1. C. a.
 Percylite: ?
 Periclasite: II. 1. B. b.
 Perovskite: I. 1. B. a.; I. 1. C. a.;
 I. 1. D. a.
 Petalite: I. 2. A. a.
 Petroleum: II. 1. F. b.
 Petzite: I. 3. a.
 Pharmacolite: I. 3. c.
 Pharmacosiderite: I. 3. c.
 Phenakite: I. 2. A. a.
 Phillipsite: I. 1. C. b.
 Phlogopite: I. 2. C. a.; II. 1. B. b.
 Phoenicochroite: I. 3. c.
 Pholidolite: II. 1. B. b.
 Phosgenite: I. 3. c.
 Phosphorite: II. 1. E. a.
 Phosphosiderite: II. 1. C. b.
 Phosphuranylite: I. 2. A. c.
 Pickeringite: II. 1. D. a.
 Picotite: I. 1. D. a.
 Pieromerite: I. 4.; II. 1. D. a.
 Pieropharmacolite: ?
 Piedmontite: I. 1. A. b.; I. 1. C. b.;
 II. 1. A. b.; II. 1. C. b.
 Pinakiolite: II. 1. C. b.
 Pinnoite: II. 1. D. a.
 Pirssonite: II. 1. D. a.
 Pisanite: I. 3. c.
 Pistomesite: ?
 Pittcite: I. 3. c.
 Plagionite: I. 3. a.
 Platinum: I. 1. D. a.; II. 1. A. a.
 Plattnerite: I. 3. c.
 Plumbogummite: I. 3. c.
 Polianite: II. 1. C. a.
 Pollucite: I. 2. A. a.
 Polyargyrite: I. 3. a.
 Polybasite: I. 3. a, b.
 Polycrase: I. 2. A. a.
 Polydymite: I. 3. a.
 Polyhalite: II. 1. D. a.
 Polyolithionite: see zinnwaldite.
 Polymignite: I. 2. B. a.
 Powellite: I. 3. c.
 Prehnite: I. 1. C. b.
 Prochlorite: see chlorite.
 Prolectite: II. 1. B. b.
 Prosopite: I. 2. A. b.
 Proustite: I. 3. a, b.
 Pseudobrookite: I. 1. A. a.
 Pseudomalachite: I. 3. c.
 Psilomelane: II. 1. C. b. Includes wad.
 Psittacinite: I. 3. c.
 Ptilolite: I. 1. C. b.
 Pucherite: ?
 Purpurite: I. 2. A. c.
 Pyrargyrite: I. 3. a, b.
 Pyrite: I. 1. A. a.; I. 1. C. a, b;
 I. 2. A. a.; I. 2. C. a.; I. 3. a;
 II. 1. A. b.; II. 1. B. b.; II. 1. F. b.

Pyroaurite: I. 1. D. b.
 Pyrochlore: I. 2. B. a.
 Pyrochroite: II. 1. C. c.
 Pyrolusite: II. 1. C. a.
 Pyromorphite: I. 3. c.
 Pyrope: I. 1. D. a.; I. 2. A. a.
 Pyrophyllite: I. 2. A. b.
 Pyrosmalite: II. 1. C. b.
 Pyrostilpnite: I. 3. a.
 Pyroretinite: II. 1. F. b.
 Pyroxene: see augite, diallage, diopside, hedenbergite, jeffersonite, schefferite.
 Pyrrhotite: I. 1. C. a.; I. 1. D. a.;
 I. 2. A. a.; I. 2. C. a.; II. 1. B. b.

Q

Quartz: I. 1. A. a, c.; I. 1. B. a.;
 I. 1. C. a.; I. 1. D. c.; I. 2. A. a.;
 I. 2. B. a.; I. 2. C. a, c.; I. 3. a, c.;
 II. 1. A. a, b.; II. 1. B. a.;
 II. 1. C. a, b, c.
 Quenstedtite: ?
 Quetenite: I. 3. c.

R

Raimondite: ?
 Ralstonite: I. 2. A. b.
 Rammelsbergite: I. 3. a.
 Raspite: I. 3. c.
 Rathite: I. 3. a.
 Realgar: I. 3. a.; I. 4.
 Reddingite: I. 2. A. b.
 Reinite: ?
 Remingtonite: I. 1. D. c.
 Retzian: II. 1. C. b.
 Rezbanite: I. 3. a.
 Rhabdophanite: ?
 Rhagite: I. 3. c.
 Rhodazite: I. 2. A. a.
 Rhodochrosite: I. 2. A. a.; I. 3. a;
 II. 1. C. c.
 Rhodonite: I. 1. A. a.; I. 2. A. a.;
 I. 3. a.; II. 1. B. b.; II. 1. C. b.
 Rhönite: I. 1. C. a.
 Rickardite: I. 3. a.
 Riebeckite: I. 1. B. a.
 Rinkite: I. 2. B. a.
 Rinneite: II. 1. D. a.
 Rittingerite: I. 3. a.
 Rochlederite: II. 1. F. b.
 Roebbingite: II. 1. C. b.
 Roepperite: II. 1. C. b.
 Rogersite: I. 2. A. c.
 Romerite: I. 3. c.
 Roscoelite: ?
 Roselite: I. 3. c.
 Rosenbuschite: I. 2. B. a.
 Rumpfitte: ?

Rutile: I. 1. A. b.; I. 1. B. b.;
I. 1. C. a.; I. 2. A. a, c.;
I. 2. B. b.; I. 2. C. a.;
II. 1. A. a, b.

S

Safflorite: I. 3. a.
Salammoniac: I. 4.
Samarskite: I. 2. A. a.
Saponite: ?
Sapphirine: ?
Sarcosite: II. 1. B. b.
Sarkinite: II. 1. C. b.
Sartorite: I. 3. a.
Sassolite: I. 4.; II. 1. D. a.
Scacchite: I. 4.
Scapolite: see wernerite, etc.
Schapbachite: I. 3. a.
Schefferite: II. 1. B. b.; II. 1. C. b.
Scheelite: I. 2. A. a.; I. 3. a.
Scheerite: II. 1. F. b.
Schirmerite: I. 3. a.
Schizolite: I. 2. B. a.
Schorlomite: I. 2. B. a.
Schwartzembergite: I. 3. c.
Scolecite: I. 1. C. b.
Scorodite: I. 3. c.; I. 4.
Selenium: ?
Selensulfur: I. 4.
Selentellurium: ?
Sellaite: II. 1. D. a.
Semseyite: I. 3. a.
Senaite: II. 1. A. a.
Senarmontite: I. 3. c.
Sepiolite: I. 1. D. b.
Serendibite: II. 1. B. b.
Serpentine: II. 1. D. b.
Serpierite: I. 3. c.
Seybertite: ?
Siderite: I. 2. A. a.; I. 3. a, c.;
II. 1. B. a, b.; II. 1. C. a.
Sideronatrite: ?
Sillimanite: I. 1. D. c.; I. 2. A. a.;
II. 1. A. b.
Silver: I. 1. C. b.; I. 3. a, c.;
II. 1. A. a.
Sipylite: see fergusonite.
Skogbolite: ?
Skutterudite: ?
Smaltite: I. 3. a.
Smithite: I. 3. a.
Smithsonite: I. 3. c.; II. 1. C. c.
Soda nitre: II. 1. D. a.
Sodalite: I. 1. B. a.; I. 2. B. a, c.
Spadaite: ?
Spangolite: I. 3. c.
Sperryllite: I. 1. D. a.
Spessartite: I. 2. A. a.; II. 1. C. b.
Sphalerite: I. 1. C. b.; I. 2. A. a.;
I. 3. a.
Spherite: II. 1. C. b.

Spherocobaltite: I. 3. c.
Spinel: I. 2. A. a.; II. 1. A. a, b.;
II. 1. B. b. See also ceylonite,
picotite.
Spodiosite: ?
Spodumene: I. 1. A. a.; I. 2. A. a.
Spurrite: II. 1. B. b.
Stannite: I. 2. A. a.
Staurolite: II. 1. A. a, b.
Steltznerite: ?
Stephanite: I. 3. a, b.
Stercorite: II. 1. E. b.
Sternbergite: I. 3. a.
Stibiconite: I. 3. c.
Stibnite: I. 2. A. a.; I. 3. a.
Stilbite: I. 1. C. b.; I. 2. A. a.
Stilpnomelane: ?
Stolzite: I. 3. c.
Strengite: II. 1. C. b.
Strigovite: see chlorite.
Stromeyerite: I. 3. a.
Strontianite: II. 1. D. a.
Struvite: II. 1. E. b.
Stutzite: ?
Stylopyrite: I. 3. a.
Succinite: II. 1. F. a.
Sulfoborite: II. 1. D. a.
Sulfohalite: II. 1. D. a.
Sulfur: I. 3. c.; I. 4.; II. 1. B. b.;
II. 1. D. c.
Sulvanite: I. 3. a.
Sussexite: II. 1. C. b.
Svanbergite: ?
Sylvanite: I. 3. a.
Sylvite: I. 4.; II. 1. D. a.
Symplectite: ?
Synadelphite: II. 1. C. b.
Synchisite: ?
Syngenite: II. 1. D. a.
Szaibelyte: ?
Szmikite: ?

T

Tachhydrite: II. 1. D. a.
Tænolite: I. 2. B. a.
Tagilite: ?
Talc: I. 1. D. b.
Tamarugite: ?
Tantalite: I. 2. A. a.
Tapalpate: I. 3. a.
Tapiolite: I. 2. A. a.
Taramellite: ?
Tarbuttite: ?
Tasmanite: II. 1. F. b.
Tavistockite: ?
Taylorite: II. 1. E. b.
Teallite: I. 3. a.
Tellurite: I. 3. c.
Tellurium: ?
Temiskamite: I. 3. a.
Tengerite: I. 2. A. c.

Tennantite: I. 3. a.
 Tenorite: I. 3. c.; I. 4.
 Tephroite: II. 1. C. b.
 Terlinguaite: I. 3. c.
 Teschemacherite: II. 1. E. b.
 Tetradymite: I. 3. a.
 Tetrahedrite: I. 3. a.
 Thalenite: I. 2. A. a.
 Thaumassite: I. 1. C. b.
 Thenardite: II. 1. D. a.
 Thermonatrite: II. 1. D. a.
 Thomsenolite: I. 2. A. b.
 Thomsonite: I. 1. C. b.; I. 2. B. c.
 Thorianite: I. 2. A. a.
 Thorite: I. 2. A. a.
 Thulite: II. 1. A. b.
 Thuringite: II. 1. B. b.
 Tiemannite: I. 3. a.
 Tilasite: II. 1. C. b.
 Tin: ?
 Titanite: I. 1. A. a.; I. 1. C. a.;
 I. 2. A. a.; I. 2. B. a.; I. 2. C. a.;
 II. 1. A. a.; II. 1. B. b.
 Topaz: I. 1. A. a.; I. 2. A. a.
 Torbernite: I. 2. A. c.; I. 3. c.
 Tourmaline: I. 1. A. a.; I. 2. A. a.;
 I. 2. C. a.; I. 3. a.; II. 1. A. a, b.;
 II. 1. B. b.
 Trechmannite: I. 3. a.
 Tremolite: I. 1. D. b.; II. 1. B. b.
 Trichalcite: I. 3. c.
 Tridymite: I. 1. A. a.; I. 1. C. a.
 Trimerite: II. 1. C. b.
 Triphyllite: I. 2. A. a.
 Triplite: I. 2. A. a.
 Triploidite: I. 2. A. b.
 Trippkeite: I. 3. c.
 Tripuhyite: II. 1. A. a.
 Tritomite: I. 2. B. a.
 Trögerite: I. 3. c.
 Troilite: meteoritic.
 Trona: II. 1. D. a.
 Tscheffkinite: ?
 Tschermigite: ?
 Tungstite: I. 3. c.
 Turgite: II. 1. C. a.
 Turquoise: I. 1. A. c.
 Tychite: II. 1. D. a.
 Tyrolite: I. 3. c.
 Tysonite: I. 2. A. a.

U

Ulexite: II. 1. D. a.
 Ullmannite: I. 3. a.
 Umangite: I. 3. a.
 Uraninite: I. 2. A. a.; I. 3. a.
 Uranocircite: I. 3. C.
 Uranophane: I. 2. A. c.
 Uranopilite: I. 2. A. c.
 Uranospherite: I. 3. c.
 Uranospinite: I. 3. c.

Uranothallite: I. 2. A. c.
 Urbanite: II. 1. C. b.
 Utahite: I. 3. c.
 Uvarovite: I. 1. D. a.

V

Valentinite: I. 3. c.
 Vanadinite: I. 3. c.
 Vanthoffite: II. 1. D. a.
 Variscite: ?
 Vauquelinite: I. 3. c.
 Vermiculite: I. 1. A. c.; I. 2. A. c. Includes jefferisite.
 Vesuvianite: II. 1. B. b.
 Veszelyite: ?
 Villiaumite: I. 1. B. a.
 Vivianite: I. 3. c.; II. 1. C. b.
 Voglite: I. 3. c.
 Volborthite: ?
 Voltaite: I. 4.
 Voltzite: I. 3. c.

W

Wad: see psilomelane.
 Wagnerite: ?
 Walpurgite: I. 3. c.
 Wapplerite: ?
 Wardite: II. 1. C. b.
 Warrenite: I. 3. a.
 Warwickite: II. 1. B. b.
 Wattevilleite: ?
 Wavellite: I. 3. c.; II. 1. C. b.
 Wehlerite: I. 3. a.
 Wellsite: ?
 Wernerite: I. 2. A. a.; I. 2. C. a.;
 II. 1. B. b.
 Whewellite: II. 1. F. c.
 Whitneyite: I. 3. a.
 Willemite: II. 1. C. b.
 Willyamite: I. 3. a.
 Witherite: I. 3. a.
 Wittichenite: I. 3. a.
 Wöhlerite: I. 2. B. a.
 Wolfachite: I. 3. a.
 Wolframite: I. 2. A. a.; I. 3. a.
 Wollastonite: I. 2. B. a.; II. 1. B. b.
 Wulfenite: I. 3. c.
 Wurtzite: I. 3. a.

X

Xanthoconite: I. 3. a.
 Xanthophyllite: ?
 Xanthosiderite: II. 1. C. a.
 Xenotime: I. 1. A. a.; I. 2. A. a.;
 I. 2. B. a.

Y

Yttrialite: I. 2. A. a.
 Yttrocerite: I. 2. A. a.

Yttrocrasite: ?

Yttrotantalite: I. 2. A. a.

Z

Zaratite: I. 1. D. c.

Zeophyllite: I. 1. C. b.

Zepharovichite: II. 1. C. b.

Zeunerite: I. 3. c.

Zinc: ?

Zincaluminite: I. 3. c.

Zincite: II. 1. C. b.

Zinkenite: I. 3. a.

Zinkosite: ?

Zinnwaldite: I. 2. A. a.; I. 2. B. a. Includes polyolithionite.

Zircon: I. 1. A. a.; I. 1. B. a.;
I. 2. A. a.; I. 2. B. a.; I. 2. C. a.;
II. 1. A. a, b; II. 1. B. b.

Zirkelite: II. 1. A. a.

Zoisite: I. 1. A. b.; I. 1. C. b.;
I. 2. A. b.; II. 1. B. b.

See also thulite.

Zorgite: I. 3. a.

Zunyite: I. 3. a.